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**THE CENTER FOR
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COLLEGE CARLISLE,
PENNSYLVANIA**



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The Senior Leader Seminar Course

Professors (COLs, Ret.) George E. Teague, Alan G. Bourque & Eugene L. Thompson

Operations and Gaming Division, CSL

The Center for Strategic Leadership (CSL), U.S. Army War College, with assistance from Senior Leader Development, HQDA, developed the Senior Leader Seminar (SLS) program to achieve the intent of an Army Leader Development Program (ALDP) Initiative for enhanced senior leader development. CSL conducted the pilot course for this program from 21-27 August 2011 at the Department of Defense Executive Management Training Center (EMTC) in Southbridge, Massachusetts. A total of 77 Army leaders attended the course – 63 colonels and 14 DA civilians (GS15).

The primary objective of the SLS program is to help achieve Army Leader Development Strategy Imperative 8, “Prepare select leaders for service at the National level.” The ‘select leaders’ in this case are senior colonels (post-MEL1) and GS15-level DA civilians, and the national-level service for which they are



Army War College Commandant, MG Gregg Martin, welcomes SLS participants

being prepared is in strategic assignments as key advisors or staff officers for general officers or senior civilian leaders. Secondary objectives of the pilot were to evaluate all aspects of the course to determine its potential value to the Army; develop a recommendation for CG, TRADOC regarding the way ahead for the program; and identify potential modifications for future courses.

The course employed an adult education model to achieve its goals, offering 12 keynote presentations and panels by a total of 19 subject matter experts followed by extended question-answer periods. After most of these



Lieutenant General Jack Sterling (left) speaks on Army Senior Leader Development

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SLS Course SG 3 discussion led by Professor Jim Kievit (upper right)

plenary sessions, attendees broke out into 13-14 person seminars for additional dialogue, facilitated by war college faculty.

Two opportunities were built-in to the program for participants to provide formal feedback. Throughout the course, participants evaluated and commented on each program Block, providing their evaluation of the presentation; its methodology, applicability, success in contributing to meeting course learning objectives, purpose, and intent; whether or not the presentation should be retained in the program; and whether or not the program would continue to benefit from engagement with the speaker.

At the end of the program participants had the opportunity to provide their assessment in a broad based After Action Review (AAR) Survey. In addition to the elements evaluated in the Block surveys, participants assessed administrative facilitation of this program; support provided by an SLS, web page on the Senior Leader Development (SLD), HQDA web site; the facilitation and enhancement of the program by the services and facilities of the EMTC and the Southbridge Hotel/Conference Center; and whether the SLS experience and developmental opportunity were a worthwhile investment of their time.

The response to the SLS program was overwhelmingly positive. In responding to the survey query of course value and overall satisfaction, respondents "strongly agreed" that the SLS program should continue.

One example of a typical response: "Course is on the right path...and is needed...has helped me get 'recalibrated' on challenges facing the Army and has given me good insights as I begin a new job in the pentagon. Very well run!" Feedback clearly supports continuation of the program. Attendees viewed the course as a very positive step by the Army to enhance their professional development and prepare them for service in difficult and demanding duty assignments. When approved, the CSL will post survey results on the SLS web page.

LTG (RET) Colby M. Broadwater III served as the Senior Facilitator for the pilot course. In addition to helping establish relevance and expand upon points made by course speakers, he was also asked to provide his own assessment of the course. His view is: "The seminar met its overall objective. Clearly there is merit in continuing to reach and impart strategic knowledge to a targeted audience of officers and civilians. What remains is refinement of the seminar based on what was observed."

Building on the success of the pilot program, CSL is seeking approval to conduct two SLS courses in FY12. It is anticipated that a growing awareness of the program will foster even greater demand for participation. Already, representatives of the National Guard Bureau and Office of the Chief of Army Reserves, who participated in the pilot course, have endorsed participation by their components. Furthermore, lessons learned by SLD, HQDA and

Army G3/5/7, who did an excellent job of identifying and inviting the type of leaders for whom this course was designed, will continue to facilitate meeting participation objectives.

The SLS pilot course demonstrated that this program is a viable and cost-effective way to meet these needs and it has tremendous potential value to the Army. Many expressed genuine appreciation for the fact that the Army allowed them this opportunity.

— CSL —

Visit of Ukrainian Armed Forces General Staff Delegation

Professor Bernard F. Griffard
Operations and Gaming Division, CSL

In accomplishing its mission to provide Support to the Operational Force, the U.S. Army War College (USAWC) actively works with U.S. European Command (USEUCOM) in support of their Partnership for Peace (PfP) bilateral cooperation initiatives. As part of this effort the Center for Strategic Leadership (CSL) hosted a familiarization visit to the USAWC, Carlisle, PA, by members of the General Staff of the Armed Forces of Ukraine on September 27-28, 2011.

As they prepared to support the 2012 UEFA European Football Championship (UEFA EURO 2012), the Ukrainian Armed Forces General Staff identified a need to learn more about strategic-level simulations that stressed political-military interdependence in the strategy development process. Based on his experience as a USAWC 2011 International Fellow, Colonel Viktor Artykhovych recommended that Ukrainian planners visit the USAWC to see how first class strategic wargames are developed and executed. In response, USEUCOM funded the visit of a six person delegation headed by Major General Viktor Nazarov, First Deputy Chief, Main Operational Directorate,



COL Anita Raines, CSL, describes the processes for the Strategic Decision Making Exercise (SDME)

General Staff of the Armed Forces of Ukraine.

Following an introduction to the USAWC and CSL, the visitors were introduced to three key strategic wargames that are fully integrated into the USAWC curriculum. The International Fellows Strategic Crisis Negotiation Exercise (IFSCNE), a tabletop simulation that is easily exportable. The Joint Land, Air, and Sea Strategic Exercise (JLASS-EX), a distributed event played among all DOD Senior Level Colleges, and the Strategic Decision Making Exercise (SDME), the USAWC's highly complex capstone simulation. These three exercises were chosen to demonstrate the capability to achieve strategic learning objectives through differing levels of design and effort.

The visit provided the Ukrainian General Staff an opportunity to better understand the important role of experiential educational events such as strategic wargaming in the development of a professional officer corps. These high-level simulations emphasize political-military interdependence and directly support the USEUCOM commander's defense reform initiatives in Ukraine that stress interagency cooperation and reinforce civilian control of the Ministry of Defense. Working through USEUCOM, this visit laid the groundwork for future USAWC-Ukrainian Armed Forces collaboration to strengthen their internal capabilities.

Through its participation in these military-to-military events the USAWC reaps multiple benefits. In addition to directly supporting the strategic initiatives of the Geographic Combatant Commanders, it also demonstrates the great return on investment provided by the International Fellows Program. Through its international alumni the USAWC and its experiential education capabilities are introduced to the armed forces of nations around the world. And, finally, the exchange of ideas with international planners and strategists provides information that allows our regional experts to strengthen their current knowledge, thus directly benefiting USAWC students and faculty.

— CSL —

Army Service Intelligence Agency Supports USAWC Objectives

Professor John Patch
Operations and Gaming Division, CSL

Strategic and theater-level intelligence are important elements of the U.S. Army War College curriculum and institutional research efforts, and the National Ground Intelligence Center (NGIC) in Charlottesville, VA, plays a role in keeping intelligence issues current and relevant at Carlisle. CSL has had a long-standing relationship with NGIC, based on the provision of twelve intelligence analysts to act as controllers in the War College's

premier experiential learning event, the Strategic Decision Making Exercise (SDME). NGIC analysts serve in SDME in a virtual intelligence community (IC) controller cell as regionally focused analysts role-playing the gamut of national and theater-level intelligence organizations supporting policy and strategy formulation. NGIC analysts also serve as mentors who educate the nation's future strategic leaders to be "informed consumers of strategic intelligence." CSL intelligence faculty also recruit analysts from other Intelligence Community agencies, such as the Defense Intelligence Agency, but NGIC provides the majority of the senior intelligence professionals in the SDME. NGIC analysts also work with CSL intelligence faculty throughout the year to support the development of an unclassified but credible picture of the future security environment. SDME's 2025 global scenario serves to create crises wherein USAWC students wrestle with difficult decisions on force allocation and resourcing, coalition-building, crisis action planning, interagency policy support and intergovernmental coordination for the optimal application of all elements of national power. Intelligence supports and informs decision making in all of these areas. NGIC has demonstrated a solid commitment to the Army War College's capstone exercise since its inception.

CSL and NGIC significantly expanded their cooperative efforts in 2011. In March, NGIC visited to observe SDME, returning in May for a working session with the USAWC command group, department chairs and intelligence faculty. NGIC made this effort to expand the integration between the two organizations, both in hopes of meeting USAWC intelligence-related needs and to strengthen Carlisle's involvement in a variety of NGIC initiatives and fora. A USAWC delegation visited NGIC in late September to receive briefings and an overview of NGIC's core capabilities and missions. The meetings resulted in a commitment to make the next step in mutual support along several lines.

First, classified threat briefings to USAWC students and faculty are planned for early 2012. The USAWC convened an intelligence working group in 2011, which will vet the threat briefing topics and coordinate a slate of briefings aligned with institutional learning objectives. These threat briefings will be offered above and beyond the national and theater-level intelligence lessons the USAWC students receive in the core curriculum.

Second, NGIC agreed to provide improved support to SDME materials development. The SDME regional scenarios contain intelligence-specific materials that describe adversary capabilities, intent and likely courses of action. These materials are unclassified, but use authoritative open source materials to present a credible 2025 threat picture. NGIC will review and comment on these products to support the CSL goal of providing a realistic and challenging SDME.

Third, CSL is exploring expanded NGIC support for the Joint Land, Air and Sea Strategic Exercise (JLASS-EX). JLASS-EX a strategic decision-making exercise conducted annually between the military's Senior Level Colleges (SLCs) and is the only course conducted jointly among all the SLCs. During JLASS-EX, students role-play key members of the National Security Council, Departments of State, Defense and Homeland Security, Joint Staff and the Geographic Combatant Commands. The exercise scenario realistically portrays a complex and tense world environment in the years 2021-22. NGIC support offers the potential for improved JLASS-EX materials and execution.

Overall, the recent efforts to strengthen the USAWC-NGIC relationship are bearing fruit, with specific benefits relevant to intelligence-related learning outcomes. CSL plays a unique role in this relationship, because it offers facilities certified for the highest level of compartmented intelligence discussions and has military and civilian intelligence faculty assigned to sustain this important relationship. NGIC hopes their efforts in Carlisle will enhance student and faculty

awareness of NGIC's contribution to national, joint and Army requirements as a key member of the Defense Intelligence Enterprise. USAWC stands to gain much from this mutually beneficial relationship.

— CSL —

Water Security and the Okavango

Mr. Brent Bankus

Operations and Gaming Division, CSL

Regional security increasingly turns on environmental issues. Since Human Security and its seven elements have been regularly included in determining state security roughly since the 1990s, Africa has been a prime example. A continent of excellent farmland and scorching desert, rich natural resources, minerals and precious metals, petroleum, and quality agricultural land, with unique flora and fauna, Africa is also one of the most unstable areas of the world. Challenges, such as food and water security, climate change, deforestation, lack of good governance and rampant diseases such as HIV/AIDS and malaria have contributed to the continent hosting seven of the 16 active United Nations Peacekeeping missions.

However, positive strides are being made in the focus area of water security, particularly in the Southern African Okavango Delta Region. The Okavango River, running through the nations of Angola, Namibia and Botswana, creates the largest inland delta in the world. The headwaters originate in Angola (called the Cubango/Cuito River), the river flows onto the plains in Botswana, crosses into Namibia, and finally empties out into the Kalahari Desert.

The Okavango is not only a rich water resource and essential to the human populations, but key to the survival of the many herds of wildlife native to the region to include antelope, water buffalo and elephants. The abundant herds can attribute to the large numbers of carnivores, who follow these herds,

specifically lions, leopards and cheetahs. In the case of Botswana, the maintenance of these herds is a state security issue. The tourist industry, because of game preserves associated with the animal herds, is the number two employer in the northern region of Botswana. Namibia and Angola are also heavily dependent on the Okavango River water. The Namibian government is contemplating diverting water from the Okavango to supply the growing population of its capital, Windhoek, and the farming industry in northern Namibia. Further, as Angola recovers from several decades of civil war, it anticipates large numbers of refugees returning to the war torn nation. New construction, other infrastructure improvements and farming are creating additional water requirements from the Okavango River.

Internally, Botswana is dealing with water related security issues. Using an innovative technique, the Ian Khama government of Botswana is using the Botswana Defense Force (BDF) to guard the precious resource of the Okavango. With rampant cross-border poaching into Botswana since the 1980s, particularly emanating from Zimbabwe, the BDF is supporting civil authorities by bolstering the overwhelmed Botswana Department of Wildlife and National Parks. From their first mission in 1987 to the present, the success of the BDF has been most effective at extinguishing these cross-border incursions in support of a whole of government approach to the problem. However, externally allocation issues remain a problem.

Further, guided by their individual water requirements and as part of the South Africa Development Community's Protocol on Shared Watercourse Systems, the three riparian states (Botswana, Angola and Namibia) entered into a coordinated agreement known as the Permanent Okavango River Basin Water Commission or OKACOM in order to better manage the Okavango Delta Region. First established in 1994, through signing the Windhoek Treaty, and composed of experts from all three nations, the focus of OKACOM is to

“anticipate and reduce unintended, unacceptable and often unnecessary impacts on the river basin’s health and environment.” The commission’s management plan for the river basin is based on equitable allocation, sustainable utilization, sound environmental management, and the sharing of benefits. Through the charter, the commission has the responsibility to determine the long-term safe yield of water available from the river; estimate reasonable demand from consumers; prepare criteria for conservation, equitable allocation and sustainable utilization of water; conduct investigation related to water infrastructure; recommend pollution prevention measures; and develop measures for alleviation of short term difficulties such as droughts and floods. Recognizing the need for a formal organizational structure, the stakeholder nations signed the “Organizational Structure for the Permanent Okavango River Basin Water Commission” in 2007, establishing a Secretariat as an internal organ of OKACOM. By February 2008, the Secretariat (OKASEC) was fully functional and is charged with providing financial, administrative and general secretarial services to OKACOM and information sharing and communication on behalf of the commission. Given the many and varied requirements of each riparian nation, in 1995 the secretariat commissioned the Okavango River Basin Steering Committee as the storehouse of subject matter experts to provide granularity on topics in the focus areas of water science, governance and the environment.

With assistance from the Global Environment Facility, and other international organizations such as the United States Agency for International Development, the commission has made progress in several areas. For example, the commission has initiated a Transboundary Diagnostic Analysis process to centralize and analyze all regional studies focused on the river basin and its resources. More importantly, the commission developed a Strategic Action Plan, approved by all three nations, which will govern the use of the Okavango for the next five years.

With the world population increasing, especially in Africa, nations of the already water stressed continent would do well to take note of the success of the OKACOM cooperative agreement. Other African nations should seek to follow the cooperative agreement’s example, since the Okavango is only one of several important river systems running through multiple nations.

— CSL —

CSL Support to Geographic Combatant Commands

Colonel Steven P. Carney
Operations and Gaming Division, CSL

The U.S. Army War College and the Center for Strategic Leadership’s extensive Geographic Combatant Command outreach program continued this summer when Dr. Kent H. Butts, Director, National Security Issues Group, travelled to Kathmandu, Nepal, 2-4 August, and Dar es Salaam, Tanzania, 15-19 August, in support of U.S. Pacific, U.S. Africa and U.S. Special Operations Commands, respectively. These efforts are representative of the outreach programs conducted by the Center in support of theater engagement efforts on strategic issues.

While in Kathmandu, Nepal, Dr. Butts served as facilitator for USPACOM’s Center for Excellence for Humanitarian and Disaster Relief, Disaster Preparedness Conference. The purpose of the conference was to discuss response options and a whole of government approach to a 6.0 magnitude earthquake scenario in the Kathmandu Valley. The plausible scenario targets a population of nearly 3.5 million people in the region. All lines of communication, roads, bridges, water systems and power lines are destroyed. Countless numbers of people are killed, injured, missing, internally displaced and most buildings within the affected area are reduced to rubble.

Participating Nepalese civil, military and nongovernmental organizations (NGOs) had weighty responsibilities

in the scenario, particularly as to how they activate an Emergency Operation Center and establish a common operational picture in order to prioritize humanitarian relief/assistance requirements. International organizations, to include a USPACOM response, are expected to assist in order to address environmental issues, resources and security upon request from the Nepalese government. Dr. Butts served as a facilitator for one of the five breakout groups charged with developing actionable solutions to a devastating natural disaster. Feedback from the conference, and particularly the scenario, was very positive and provided a better understanding of the significant level of planning and preparation before encountering a pivotal disaster.

While in Kathmandu, Dr. Butts presented a lecture at the Centre for Nepal and Asian Studies (CNAS) at Tribhuvan University with the approval of U.S. Embassy Kathmandu. The focus of the presentation to 65 academics and graduate students centered upon the importance of resources, stability and state legitimacy. Dr. Butts posited resource access is directly related to government legitimacy and outlined steps to build human security and to improve state stability. CNAS Director, Dr. Adhikari, moderated the event and Q&A session and asked that an information exchange be established between CNAS and CSL. CSL has since forwarded many of its publications relating to building and maintaining governmental legitimacy to CNAS.

The presentation was well received, both at CNAS and in a private session with three senior Nepalese Army officers, particularly as Nepal recently ended a Maoist insurgency, continues to combat terrorism, and seeks to build the legitimacy of the new multi-party, coalition government. Nepal’s strategic importance to U.S. interests is based on the geographic and geopolitical crossroads of South Asian security, as it sits between the regional powerhouses of India and China.

Later in August, Dr. Butts travelled to Dar es Salaam, Tanzania, to participate in the “Regional Special Operations for Combating Terrorism” seminar. The U.S. Embassy Dar es Salaam sponsored the event at the request of the Government of Tanzania. A joint mobile education team from the Joint Special Operations University developed, funded and executed the week-long program through the Combating Terrorism Fellowship program in support of USSOCOM objectives and USAFRICOM’s Theater Security Cooperation Program. Attendance included 20 senior Tanzanian military and civilian government leaders from the military, police and the Counter Terrorism Center, and centered on a whole of government approach to analyze and counter terrorist activities.

During the five day seminar, Dr. Butts presented three 90 minute lectures on *The Military’s Role to Address Underlying Conditions Terrorists Seek to Exploit, Border Security and Environmental Security*. Upon completion of all conference presentations, attendees split into three working groups to review exercise problems, develop potential solutions and deliver findings on the final day of the seminar. Feedback from senior Tanzanian participants was very positive and planning for a seminar in FY ’12 is underway. Presenters from the joint mobile education team were very complimentary of Dr. Butts’ efforts in their after action review and plan to seek assistance from the Center for Strategic Leadership on this and other future USSOCOM exercises.

The Center for Strategic Leadership has a long history of research and publication on combating terrorism and environmental security issues. Since 1993, the Center remains at the forefront of environmental security research in support of the U.S. Army, Geographic Combatant Commands and the Department of Defense. The Center continues to partner with U.S. government agencies, NGOs and foreign governments in the pursuit of a whole of government approach to

resource consequence management and maintaining regional security.

— CSL —

Communicating Complexity: Creating Policy for Mitigating and Controlling Persistent Infectious Disease

Prof Bert B. Tussing

Operations and Gaming Division, CSL

There are areas of homeland security that seldom see the light of day for the preponderance of the American public. Their relative obscurity may be born of complacency; threats neither broadcast nor realized seldom stimulate urgency. These areas may be seemingly complex beyond comprehension, leaving the average citizen to choose more tangible concerns for his or her personal consideration. In the meantime, he or she may choose to deliberately surrender the cloudier concern to policy makers assumed to possess a clearer perspective on the subject. Between this complacency and surrender may lay a middle ground that could be bridged between the scientific community and those policy makers, if the policy makers were more educated, or the scientists more communicative.

One of these areas is persistent infectious diseases (PID). The range of concerns surrounding this may begin with natural occurrence and continue all the way to deliberate, diabolical introduction. That occurrence or introduction may take place through human conveyance, by way of domestic animal populations, or through wildlife. Historically, the introduction has proven to be devastating to entire segments of humanity. Potentially it could be again.

In recognition of this potentiality, the Institute on Science for Global Policy (ISGP) has convened a series of discussions, caucuses and debates on the subject of *Emerging and Persistent Infectious Diseases*. In the most recent of these, representatives of the United States Army War College’s Center for Strategic

Leadership and Strategic Studies Institute were invited to join an international contingent of scientists and technologists, alongside government, private sector and societal leaders, to develop and promote a clearer understanding of the real-world challenges and potential solutions surrounding the subject.

The impetus behind the forum, and similar forums to follow, was a sort of dual recognition: First, that Science and Technology (S&T) has been and will continue to be a vital component in the progress and protection of our people; Second, that science misunderstood, misrepresented, or misapplied will be of lesser service, and could, in fact, prove to be detrimental to the society it should otherwise be serving. Accordingly, to contribute to the necessary synergies between S&T experts and policy makers, that will translate that expertise to social ends, ISGP is seeking to turn these sessions into a means of accurately and forthrightly conveying solutions to the PID challenge.

The ISGP forums are constructed around a unique presentation-discussion-debate format, and conducted under Chatham House Rules of non-attribution. The conference agenda was comprised of eight such sessions, each devoted to a policy position paper prepared and distributed prior to the forum. The ultimate intent of the forum was to obtain clarity of understanding among participating non-specialists, and identify areas of consensus and actionable policy decisions supported by credible scientific information. With participants from North America, Europe, Australia and Asia – containing an equally rich representation of public and private sector agencies – the assemblage assured a set of perspectives that was both intergovernmental and international. Among the areas of consensus born of those perspectives were the following:

1. The challenges of preventing and controlling infectious diseases in humans and in animals, as well as the diseases themselves, are deeply intertwined and are critically influenced by diverse factors... including those that characterize ecological

and social environments. Therefore, it is paramount that efforts to prevent and control infectious diseases use a comprehensive approach that considers human, animal, and wildlife health and is based on multi-disciplinary understanding, including input from social and behavioral sciences and from economics. Among the actionable steps suggested to bring about this understanding was establishing a global coordinating entity (perhaps within the United Nations) charged with creating and promoting a “One Health initiative” that would coordinate efforts across human health, animal health, and wildlife management agencies. The forum further recommended creating a unified reporting system to share infectious disease data across disciplines, around the world.

2. The demonstrated worldwide success and cost effectiveness of vaccines in minimizing, and in some cases preventing the acquisition and spread of infectious diseases strongly supports the conclusion that vaccine use must be significantly increased globally. Recent experience demonstrates, however, that a variety of socially complex obstacles to universal immunization exist, including economic barriers....and a growing tendency of the public to refuse vaccines based on mistrust of vaccines and/or perceived low risk of contracting disease. Scientifically credible evidence suggests that effective new strategies are needed to accurately inform policy makers and the public about the advantages and rational risks associated with vaccines, and to minimize the impact of the unwarranted obstacles to universal vaccine use. Actionable steps suggested to remove economic barriers included establishing a new public-private partnership to promote the public benefits from research and development (R&D), while simultaneously motivating pharmaceutical companies to invest in innovative vaccine R&D. Long-term corporate tax breaks, first-in-line privileges, and guaranteed numbers of vaccine purchases by governments are incentives that might foster innovative vaccine R&D within the partnerships. In dealing with the challenge of mistrust and misinformation, the forum suggested

that a substantially improved societal and government leadership—among scientists, academics and physicians as well as governmental policy makers—is needed to develop a consistent “one voice” view committed to universal vaccine coverage. Both useable, credible information, and communication skills, will need to be improved in order to empower the message and the messengers.

Scientists and policy makers must more effectively communicate scientific information concerning the risks and benefits of infectious disease prevention methods, such as vaccines, among both their respective communities and to the public. Misleading communication leads to confusion among experts and the lay public, and thereby hampers the implementation of policies designed to prevent the acquisition and spread of infectious diseases. Participants suggested that joint training programs need to be implemented to improve the communication skills of scientists, public health officials, and policy makers in dealing with these complicated issues. Rather than relying on a messages consistently perceived as “after the fact,” members of the forum also recommended taking proactive communication to the public, educating them to dangers and preventative measures, before infectious diseases become an issue of urgency. In so doing, innovative, evidenced-based measures need to be taken in communicating frequently complex science to public health officials, policy makers and the public-at-large—much of whom will have neither scientific nor technical expertise.

The foregoing is only a representative sampling of the discussion held, consensus attained, and steps recommended by the forum’s participants. Much more is available in the Institute’s complete report. This conference represents the “centerpiece” of the total ISGP initiative examining *Emerging and Persistent Infectious Diseases*. Devoted primarily to a “focus on prevention,” it was preceded by a similar forum focused on surveillance (including detecting, monitoring and reporting infectious disease trends). The

final forum in the series will be held in October 2011, focusing on means of mitigating the cause and effect of the diseases as they occur. Information on that forum, as well as the two preceding it, will be available online at www.scienceforglobalpolicy.org.

— CSL —

Deep Gas or Water? Or Both?

Mr. Brent Bankus

Operations and Gaming Division, CSL

The importance of energy security as a U.S. National Security interest cannot be overstated, so much so that reference to it was included in the 2010 U.S. *National Security Strategy*. An excerpt of the document states: “We must transform the way we use energy – diversifying supplies....By doing so, we will enhance energy security, create jobs, and fight climate change.” Key to achieving energy security is diversification of energy sources, so as not to greatly impact the flow of everything from heating homes, to cooking, to manufacturing and the list goes on.

The United States is by far the world’s leader in the consumption of energy, closely followed by China. For example, the United States consumes 18,690 million barrels of oil per day, and China with its burgeoning economy uses 8,200 million barrels per day. Further, comparing the consumption of natural gas, the United States is also the highest consumer at 647 billion cubic meters (bcm) of natural gas per year. Russia ranks second with a consumption rate of approximated 440 bcm.

Given today’s geopolitical landscape, if the United States could satisfy its energy production for internal consumption, and perhaps provide energy exports to other countries, this would present our nation with a huge advantage in the global energy market. The potential solution lies within Shale Natural Gas production. From the mid to late 1990s, drilling for shale gas was not a prosperous venture, but by 2005 technology improvements made drilling

quite profitable. In comparison, in 2007 of all the natural gas produced in the United States, 42% was shale gas (also known as unconventional gas), and by 2020 it is estimated that it will climb to 64%.

The question is not about whether tapping into the Shale Gas deposits would support U.S. National Security interests by reducing reliance on foreign oil, but rather what effect would drilling for natural gas have on the local environment? Over the past decade, the media reported extensively on the leakage of polluted by-products from the gas drilling process, also referred to hydraulic fracturing or “Fracking” into local water tables.

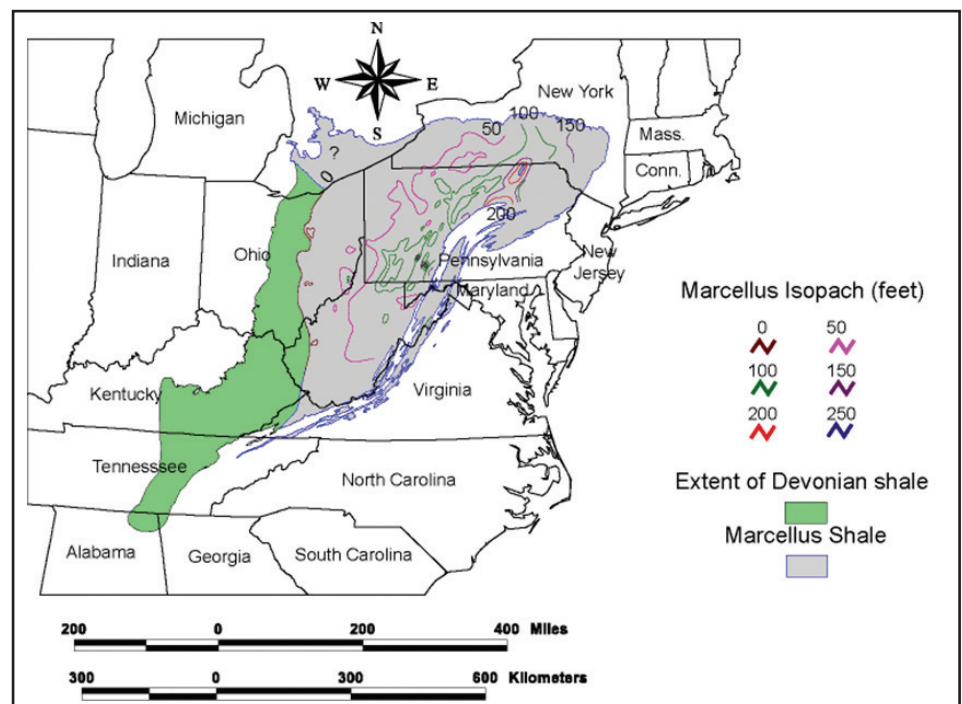
Technology improvements in the drilling process enabled Fracking to be highly lucrative by pumping a significant amount of water into the shale layers in order to release gas deposits. At the center of this issue is the infusion of chemicals into the water source during the drilling process. The concern is to ensure that micro-organisms do not build up between the rock layers and the metal piping, with the potential absorption into the local water table.

For example, in upstate New York drilling companies have signed several contracts with local residents; however, due to the publicity of possible pollution to local water tables, the state government has called a halt to drilling until proper

studies can be completed in order to codify environmental requirements to the drilling process. In the interim, participating residents are having second thoughts for several reasons. First, drilling companies have invoked a codicil common to drilling contracts which allow the contract to be renewed despite “unforeseen circumstances,” meaning the current contract can be renewed without the consent of residents. As a result, residents are now concerned of the possible second and third level effects on their local community. For example, air pollution from increased truck traffic, and their ability to use the leased land

for farming, is a top concern. Finally, and just as important, residents are leery of possible law suits if it is determined local water tables are polluted by the by-products of the Fracking process.

Consequently, ensuring America’s energy security by taking advantage of the reserves of natural gas is at best a “double edged sword.” Any decision must address the environmental concerns uncovered by the media, residents leasing their land, the potential loss or creation of jobs in a downturned economy by drilling companies and investors, weighed against the effects on U.S. National Security interests.



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